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ABSTRACT

The purpose of this research was to assess the relative effectiveness in changing attitudes of (a) a lecture method versus a discussion method of presenting drug information, and (b) large groups versus small groups as recipients of drug education efforts. A total of 475 basic trainees at Fort Knox, Kentucky were given a drug attitude and information questionnaire during the early part of "fill week" in their basic training, before they had received any Army training related to drugs. Four days later, the trainees were given a one-hour drug presentation, followed by another administration of the drug attitude and information questionnaire. The method of presentation was either lecture, structured discussion, or unstructured discussion; group size ranged from five to forty-five trainees. The lecture was objective about drug users, stressed physical and psychological needs rather than drug "facts," and could be used in topical outline form to guide the discussion groups. Thirty-six trainees formed a control group. Neither group size nor method of presentation had a statistically significant effect upon attitude change. This report will be of interest to those concerned with drug education and attitude change. (Author)

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The Effects of Group Size and Presentation Method On the Impact of A Drug Presentation

Richard E. Kriner and Michael R. Vaughan

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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The effects of group size (large vs small) and method of presentation (lecture, structured discussion, and unstructured discussion) on attitude change were assessed in a population of basic trainees, tested before and after a one-hour drug presentation. Neither group size nor method of presentation had a statistically significant effect upon attitude change. The artifact of statistical regression is discussed as it relates to the assessment of attitude change in drug education and the problems encountered in separating regression effects from treatment effects.

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SUMMARY AND CONCLUSIONS

PROBLEM

In 1971, the Army initiated its program directed at the prevention and control of drug and alcohol abuse in the military. Among the responsibilities assumed by the Army under this program was that of prevention through education in the drug abuse field. Selecting educational methods that are effective and at the same time practical in terms of manpower and time involved is a major challenge.

The variety of educational approaches available to the drug educator includes lectures, films, discussion groups, role-playing techniques, and simulation approaches. If a lecture approach to drug education produces the same impact upon the audience as does a discussion approach, then the lecture approach could reach more recipients in the same time than a discussion method and, thus, be more efficient. Likewise, if 45 people can be served as effectively as 10 in a lecture situation, then serving 45 is more efficient.

The present research was directed at assessing the relative effectiveness of a lecture method versus a discussion method, and the relative effectiveness of large groups versus small groups as recipients of drug education efforts.

APPROACH

A one-hour drug lecture was written which was objective about drug users, stressed physical and psychological needs rather than drug "facts", and could also be used in a topical outline form to guide discussion groups. The decision to use a one-hour presentation was based on the frequent use in the military of class-period time intervals of one hour and the fact that a one-hour presentation is relatively common for drug education in the military and civilian communities.

The method used to obtain data and present the drug education topic was a pre-post experimental design. Subjects were given a pretest measure, followed by the drug presentation, and followed again by a posttest measure to assess change resulting from the drug presentation.

A total of 475 basic trainees at Fort Knox, Kentucky were given a drug attitude and information questionnaire during the early part of "fill week" in their basic training. Four days later, the trainees were given a one-hour drug presentation followed by the drug attitude and information questionnaire.

The drug presentation given to the trainees was <u>one</u> of six possible presentations: (a) a lecture to 45 trainees, (b) a lecture to 10 trainees, (c) a structured discussion for 15 trainees, (d) a structured discussion for 5 trainees, (e) an unstructured discussion for 15 trainees, or (f) an unstructured discussion for 5 trainees. These six presentations served as the different combinations of the two variables of interest in the study: (a) lecture versus discussion (the method of presentation), and (b) large versus small groups (group size).

An additional 36 trainees received the pretest and posttest questionnaires over a four-day interval, but did <u>not</u> receive a drug education presentation. These 36 trainees formed the control group which was used as a basis of comparison for the groups receiving the drug education presentations.

The questionnaire which was used as the pre- and posttest measure contained 14 drug information items and 28 items measuring drug-related attitudes. The

14 information items were combined to form an INFORMATION scale and the 28 attitude items were grouped into eight drug-attitude scales:

- Confidence in volunteering for help
- Extent to which drug use is a personal decision
- Physiological harmfulness of drugs
- Attitudes concerning marijuana
- Intentions for future use of drugs
- Usefulness of drug education
- Reasons why people use drugs
- Alternatives to drug usage

Scores on these scales were used as the dependent variables in the analyses of the effectiveness of the various experimental treatment conditions (drug presentations) in bringing about changes in the attitudes and knowledge of the trainees.

In programs where attitude change is one of the objectives of the communication efforts, it is expected that those subjects whose attitudes are somewhat extreme prior to any presentations or communication attempts will become less extreme as a result of the presentation. Especially in drug education programs, the views advocated by the program are usually more moderate than extreme anti- or pro-drug attitudes. Drug programs tend to express neutrality, seldom advocating the "myths" of drug use hazards or the panaceas of drug taking. The expected effect of drug education, therefore, is to make the extreme anti-drug viewer more realistic and moderate, and the extreme pro-drug viewer more suspect and aware of the potential hazards of drug use. The net result is to pull in the extremes of attitude without affecting the moderate views very much.

Unfortunately, there is a statistical artifact in the instance of repeated measurements using the same measuring instrument, which produces the same effect upon attitude measures as was expected in the case of drug education impact. "Regression effect" is a tendency for scores to gravitate toward the mean on second or later administrations of a measuring instrument. This effect is a function of error in the measurement of attitudes rather than any <u>real</u> change in attitude.

In the present study, an effort was made to correct for this regression effect in order to allow any true drug presentation impact to become visible. The experimental groups and the control group were further divided into upper, middle, and lower thirds on the basis of their pretest attitude scale scores. This was done for each of the eight attitude scales as well as the information scale. The data analyses were then performed on the posttest questionnaire data for each of the measurement scales. Further comparisons were made between experimental groups and the control group, using a regression equation to eliminate the "regression effect" in the experimental groups.

RESULTS

Information and Attitudes Concerning Drugs

There were no significant differences among the various experimental groups in level of knowledge of drug information following the drug presentations. There was an increase in INFORMATION score from pretest to posttest for all experimental groups combined as well as for the control group, but this increase was <u>not</u> statistically significant. The mean INFORMATION score for the combined experimental group on the posttest was 7.6 and for the control group 8.1 out of a possible range of 0 to 14 correct.

The different presentation methods (lecture, structured discussion, and unstructured discussion) yielded significant posttest differences on two of the eight attitude-item scales (Extent to Which Drug Use is a Personal Decision, and Physiological Harmfulness of Drugs). For both of these scales, posttest scores were highest (in the desired direction) for the lecture method of presentation, followed by structured discussion and unstructured discussion respectively.

For the scale representing the Extent to Which Drug Use is a Personal Decision, the difference found is very possibly due to the fact that the groups differed on the pretest and thus is not directly attributable to the presentation itself. On the scale dealing with Physiological Harmfulness of Drugs, however, the difference appears to be a result of the presentation method since the groups did not differ noticeably on the pretest. In both cases, the differences found were not in the expected pattern (i.e., that lecture would be less effective than discussions).

Regression Effects

A definite regression effect was evident in the data for all but two of the item scales (INFORMATION, and Extent to Which Drug Use is a Personal Decision). This effect was observed in both experimental and control groups.

The presence of regression effects in the experimental group data makes it difficult to assess actual treatment effects. To correct for this effect, the control group data were used to generate a regression equation. This equation was then used to compute a "predicted" posttest mean for each experimental group. These "predicted" values were plotted with the actual or obtained posttest means for each experimental group to serve as an indication of the extent to which each experimental group posttest mean was different from the expected mean in the absence of any real treatment impact. The experimental group data, when treated in this way, showed some consistent trends indicating that something besides simple regression effects was evident in the posttest means. Although these trends were not tested statistically, there appeared to be a definite impact of the various drug presentations upon the observed posttest means.

Earlier analyses of the data indicated that, generally speaking, there were no significant differences among the different types of presentation or group sizes. The implication of the various analyses of data, therefore, is that the various presentations do not differ in their impact, but that the presentations as a group have some impact upon attitudes measured subsequent to the presentations.

CONCLUSIONS

(1) Many of the social issues on which people have opinions or attitudes are such that the variety of attitudes held range from one extreme to the other. Often, the attitude advocated by a program designed to alleviate a social problem lies somewhere toward the middle of the possible extremes of existing attitude regarding the issue. In these instances, the impact of an attitude-change program is extremely similar to the effect of measurement error when using repeated administrations of the same measurement instrument (regression effect); care must be taken to separate the true effects of the program from the artifacts of measurement error.

(2) In the present study where a one-hour drug presentation is involved, there was no appreciable difference in the immediate effect upon attitude between a lecture

presentation, a structured discussion, and an unstructured discussion. However, since measures of attitude change were not made at a later period of time after the presentations, no conclusions can be drawn regarding the effects over time.

(3) In the present study, the items dealing with Physiological Harmfulness of Drugs indicated that the lecture presentation had a greater impact than the discussion presentations in bringing about attitude change. In addition, they indicated a greater impact of structured discussion over the unstructured discussion. The reason for this apparent difference in effectiveness may lie in the fact that physiological harmfulness of drugs involves an exchange of information that may not normally arise in an unstructured discussion and may only be touched upon in a structured discussion. However, in the lecture condition the topic of physiological harmfulness of drugs was specifically treated. The conclusion, therefore, would be that where specific information or facts are required in order to bring about attitude change, or where a topic may not arise spontaneously in discussion, a lecture approach or input would be more effective in changing attitudes related to the topic in question.

(4) Although some attitude change was apparent in the present study, the potential impact of a one-hour presentation appears to be rather small. More than one hour may be needed for programs or presentations to achieve significant impact. Care should be taken to insure that the necessary information is presented and discussed. The amount of information that can be transmitted is severely limited by time constraints and therefore the objectives of such a presentation should be rather strictly defined to allow for the maximum coverage of relevant material in the allotted time.

(5) The size of the audience in this study had no apparent effect upon the outcome of the presentations. Since only two lecture sizes (45 and 10) and two discussion group sizes (15 and 5) were examined, no conclusions can be drawn regarding other group sizes—for example, the effect of a lecture group size of 100 or more. However, in this study no differences were found between the larger and smaller sizes in terms of impact upon measured attitude change. Thus, if the choice of group size for lecture is between 10 and 45, there seems to be no advantage in selecting the smaller group size. Likewise, where discussion groups are concerned using a group size of 15 seems to be as effective as a group of five for discussion presentation similar to that used in the present study.

PREFACE

The work described in this report was performed by the Human Resources Research Organization under Work Unit COMMUNICATE, Dimensions of Attitude and Behavioral Change Programs. The objective of the Work Unit was to determine the effects of individual participation and audience size on the effectiveness of military educational programs of attitude and behavior change.

In partial fulfillment of this objective, an experimental study of the effects of group size (large and small) and method of presentation (lecture, structured discussion, and unstructured discussion) on attitude change following a one-hour drug presentation was conducted at Fort Knox, Kentucky. A second study, not covered in this report, was conducted to assess the effectiveness of the Racial Awareness Program (RAP) at Fort Meade, Maryland.

The research was conducted at HumRRO Division No. 2, Fort Knox (now the Louisville Office of the Central Division), where Dr. Donald F. Haggard was the Director. Dr. Wallace W. Prophet is the present Director of the Central Division and William C. Osborn is Louisville Office Director. Dr. Richard E. Kriner served as the Work Unit Leader. Michael R. Vaughan performed the work on the evaluation of the RAP program at Fort Meade. Assisting in the performance of the work were Eugene H. Drucker, James Harris, and Adele Denny.

Appreciation is expressed to SP5 Tracy Laughlin, SP5 Bruce Avery, and PFC David Dietz of the U.S. Army Armor Human Research Unit, Fort Knox, for their participation as instructors in presenting the drug presentations and discussion groups as well as in data collection and analysis. LTC Willis G. Pratt is Chief of the Unit.

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Meredith P. Crawford
President
Human Resources Research Organization

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The Effects of Group Size and Presentation Method On the Impact of A Drug Presentation

INTRODUCTION

BACKGROUND AND PURPOSE

Changing attitudes has often been the objective of television spots and specials that deal with the alcoholic or the drug user. An attempt at attitude change can also be seen in the increased use of blacks as key figures in television commercials or actors in television series. The ultimate purpose of many efforts of this nature is to bring about some gradual shift in the attitudes of the viewers.

More intensive efforts at attitude change are represented by education programs dealing with alcohol, drugs, race relations, leadership, and a host of other topics. A major objective of drug education is to create a more knowledgeable individual by bringing about an awareness and understanding of the dangers of drug usage, as well as the reasons underlying such usage. It is assumed that if an individual is given a greater knowledge and awareness of drugs, his behavior will change from a position favoring the use of drugs to one opposed to drug usage.

The Army initiated a drug and alcohol prevention program in 1971. As part of this program, every individual entering the Army was supposed to receive some form of drug education. In addition, drug treatment centers were set up and included some forms of drug education. Drugs and drug usage were included as topics in other training programs for officers, NCOs, and other military audiences.

In the various aspects of the Army drug program, drug education can take a variety of forms, from short lectures to long-term encounter or sensitivity groups. Participants may passively attend information presentations and films or they may be actively involved in role-playing situations, discussion groups, or unstructured rap sessions. The mode of presentation, degree of individual participation, and size of the audience are often determined by the availability of time and manpower.

However, in the design of such programs and the decision to use them, it would be helpful to know whether a presentation of a given length would be more effective when administered to relatively large groups (around 50 individuals) or to small groups (5 to 10 individuals). The effect of group size on group performance has been studied in contexts other than drug presentations.[1] In many of these studies, the size of the group has been found to have an effect on resulting performance of the group. It is reasonable, therefore, to suspect that group size may affect response to drug presentations as well.

Very often, the length of a drug presentation is about one hour. This length is usually dictated by availability of facilities and scheduling; for example, class periods or training sessions are often broken into one-hour segments, so, topics being covered are also broken into one-hour segments. The study of group size and method of presentation was therefore directed at a one-hour drug presentation.

[1] Paul A. Hare. *Handbook of Small Group Research*, The Free Press of Glencoe, New York, 1962.

Herbert Solomon. "Effect of Group Size on Group Performance," Technical Report No. 101, Stanford University, Stanford, California, 1964.

Thomas R. Collingwood. "Differential Effects of Large and Small Group Training and Retraining on the Long Term Retention of Facilitative Communication," *Dissertation Abstracts International*, vol. 31 (9-B), March 1971.

METHOD

EXPERIMENTAL DESIGN

Size and Presentation Conditions

The two major points of interest in this study were the effects of *group size* and *method of presentation* upon attitude change and knowledge of information in a one-hour drug presentation.

The size of an audience receiving a drug presentation can range from thousands (e.g., viewers or readers of mass media) to a single individual (e.g., a person in private conversation or in a counseling session). Classroom groups are likely to range in size from a minimum of four or five persons to a maximum that depends upon the size of the classroom.

For this study a lecture group of 45 was classified as *large* and a lecture group of 10 as *small*. Likewise, a discussion group of 15 was classified as *large* and a discussion group of five as *small*. These group sizes appeared to be realistic in the context of drug education groups. This dichotomy (large - small) formed the two levels of group size examined in the present study.

The two major methods of presentation included in the study were lecture and discussion, since these are the predominant methods of presentation of drug education used in the military. The discussion method to be used in the experiment was further divided into *structured* and *unstructured* discussion.

The two main factors combine to form a basic experimental design with two levels of group size and three levels of method of presentation. This basic design is represented as follows:

	Lecture	Structured Discussion	Unstructured Discussion
Large Group			
Small Group			

Constructing the Drug Presentation

After formulating the basic design, the next step required the construction of a one-hour drug presentation that could be presented in lecture form and also be easily adapted for presentation in a structured and an unstructured discussion situation.

Some drug presentations or curricula deal strictly with information of a factual nature and have, as their immediate objective, the increase in knowledge of selected drug facts (information programs). Others deal more with the dynamics of drug usage,

concentrating on the personality and behavior of drug users. Still other presentations direct attention to more global cognitive and behavioral issues, such as life styles and emotional make-up, dealing with drugs only as a single instance of more general problems and behaviors.

Since the wide variety of drug education approaches and objectives cannot be covered in a single presentation, with limited time and facilities, the plan was to concentrate on the main objective—attitude change—and avoid presenting a drug information topic. Therefore, the decision was made to construct a one-hour presentation on the general nature of human psychological and physical needs and their relationship to the use of drugs. The content of the presentation was intended to be objective and to refrain from extensive presenting of facts and information, such as the pharmacology and classification of drugs. The presentation was written in a relatively informal conversational style; there was some coverage of hard factual information but the content consisted mostly of deliberations on general psychological needs and life styles. In addition, there was some mention of the exemption program in the Army.

For the lecture condition of the study, the drug presentation was given verbatim. For the discussion conditions, it served only as a guide and topical outline within which the discussions took place. The final version of the drug presentation, as given in the lecture condition, appears in Appendix A. The topical outline used in the structured discussion condition is shown in Appendix B. For the unstructured discussion, only general topic guidance was given at the beginning of the period, with the leader maintaining the discussion on the drug topics listed in the outline.

Measures of Drug Attitudes and Information

The dependent variables or indices of effectiveness in the study were (a) attitudes toward various aspects of drug use, and (b) knowledge of drug information. Although the drug presentation did not place heavy emphasis on factual information about drugs, it was impossible to avoid the topic entirely. The discussion of drug facts was also inevitable in the discussion conditions; any program concerning drugs is bound to elicit some concern about facts related to drugs even if these facts are not directly covered in the presentation. It was therefore considered necessary to include some method of measuring basic drug information.

A 14-item drug facts test was constructed to assess the extent of knowledge of drug information and to serve as the information-dependent variable. An additional 28 attitude items were constructed to measure a variety of drug-related attitudes. These served as dependent measures of attitudes toward drugs and were used to assess the effectiveness of the presentations. The final set of 42 items used in the study appears in Appendix C.

To facilitate scoring and analysis of the questionnaire items, ad hoc clusters or scales of items were formed by combining items that dealt with a common topic. In this way, the number of individual analyses was reduced and the data were combined in a way that makes interpretation and discussion less complicated and more meaningful. It should be pointed out, however, that this combination of items into clusters was done not on a statistical basis but rather on a judgmental basis. The items comprising a scale or cluster have only face validity in that their content appears quite homogenous.

The first 14 items of the questionnaire dealing with information about drugs and drug use were combined to form an INFORMATION scale. The possible range of scores on this scale is 0-14 items correct.

The remaining 28 items dealing with attitudes toward drugs were grouped together to form eight attitude scales. These scales, and the items grouped to form the scale, are as follows:

Scale	Items
Confidence in volunteering for help	15 and 42
Extent to which drug use is personal decision	13, 37, 38
Physiological harmfulness of drugs	17, 21, 29, 32, 33
Attitudes concerning marijuana	18, 23, 30, 36
Intentions for future use of drugs	19, 24, 25, 26
Usefulness of drug education	20, 27, 39
Reasons why people use drugs	22, 28, 35, 41
Alternatives to drug usage	31, 34

Each of the attitude items was worded in the form of a statement. The subject responded to each item by indicating the extent to which he agreed or disagreed with it. The response categories ranged from "strongly agree" to "strongly disagree" on a six-interval Likert-type response scale. The responses were scored by assigning six points to answers that indicated anti-drug attitudes and one point to those indicating pro-drug attitudes, while assigning values of two to five points to the intermediate intervals. In this way the higher scores on each item cluster represent anti-drug views while lower scores represent pro-drug attitudes. For example, a cluster comprised of four items has a maximum possible score of 24 (anti-drug) and a minimum possible score of six (pro-drug).

Assessment of Change or Effectiveness

The effectiveness of a drug education presentation rests in its ability to bring about a change, toward improvement, in attitudes toward drugs and their use and/or knowledge of drug facts. For this reason, the individual's attitudes toward drugs and knowledge of drug information should be measured before and after the drug presentation indicating any changes in attitudes or information. This was accomplished in the present study by administering the questionnaire before the drug presentation (pretest) and after the presentation (posttest). The pretest was given three to four days in advance of the drug presentation for each subject group. Immediately following the presentation, the subjects filled out the questionnaire again.

On the basis of each person's pretest score on each item cluster or scale, the subjects can be categorized as *high*, *medium*, or *low* by taking the upper third, middle third, and lower third of the distribution of total scores on each scale or item cluster. In this way, the effects of the drug presentation can be examined for those initially opposed to drugs (high group), neutral about drugs, (middle group), and in favor of drugs (low group). In the case of the INFORMATION scale (items 1-14) these groups represent high, middle, and low levels of knowledge respectively.

This classification of subjects by pretest level provided a third factor in the basic experimental design discussed earlier in this section of the report. The resulting experimental design used in data analysis is represented as follows:

		Lecture	Structured Discussion	Unstructured Discussion
Large Group	High			
	Middle			
	Low			
Small Group	High			
	Middle			
	Low			

SUBJECTS

Basic trainees or new recruits represent a group of major interest in the Army drug program. In addition, these are the military personnel who, at an early point in service, have not received any Army drug education. For these reasons, they were chosen as the subject group from which samples would be drawn for data collection for this study. The subjects were basic trainees at Fort Knox, Kentucky.

Army drug education was given on the second day of Basic Combat Training (BCT) so, to avoid any confounding of the study data by BCT drug education, data collection had to occur during the latter part of fill week and the first day of training. This provided very little time to pretest the trainees, give the drug presentation, and posttest. Pretesting was done during fill week, and four days later the trainees received the drug presentation and posttest questionnaire. The results of the study therefore apply only to a subject population of trainees or new recruits during the first week in their BCT unit. As such, the results must be interpreted cautiously and not assumed to be applicable to Army drug education generally.

An initial sample of approximately 475 basic trainees was selected for the study. These trainees were tested by company because of availability and scheduling requirements in basic training. The training companies were arbitrarily assigned to the treatment conditions and, in some instances, trainees from a single company were arbitrarily divided into several treatment groups. All pretesting was done with the company assembled into one large group, which was later divided into treatment groups. Oversampling was done on the pretesting groups to assure sufficient sample sizes for the treatment and posttesting. All subjects who completed only <u>one</u> of the two testing questionnaires (pre- or post-) were dropped prior to data analysis. This resulted in a final sample size of 238 trainees who completed a pretest, received a treatment condition, and completed a posttest.

In addition to the 238 subjects who served as the experimental groups, 36 basic trainees served as a control group. These 36 trainees were given the pretest questionnaire and, four days later, were given the questionnaire again (posttest). However, they received <u>no</u> drug presentation or treatment. The data from these trainees therefore serves as a "base rate" or "control" against which the experimental treatment groups could be compared. In addition, the control group data provided a means for estimating test-retest reliability of the questionnaire item clusters or scales.

PROCEDURE

Since credibility and the use of peers is of extreme importance in drug education, it was felt that military personnel should present the material in this study. For this reason three enlisted men from the U.S. Army Armor Human Research Unit at Fort Knox served as instructors by presenting the lectures and leading the discussions. These men, who attended a training workshop for discussion leaders and facilitators, were also deeply involved in the construction of the drug presentation. Prior to the experimental drug presentations, they conducted several practice presentations to become familiar and comfortable with the material.

The data collection began in mid-March 1973. Each instructor had equal participation in presenting the treatment conditions, thereby eliminating any systematic bias due to "instructors." Each treatment condition represents the averaged effects of instructors.

For the lecture condition, each instructor presented the material verbatim and allowed 15 minutes of question-and-answer time following the lecture.

In the structured discussion condition, the instructor informed the group that 10 minutes would be allocated to discussion of each of six topic areas. These topics were derived from the lecture content and are shown in Appendix B. The instructor introduced the topic area and allowed the group to discuss it for 10 minutes, at which time the instructor introduced the second topic area, and so on. The instructor participated only to the extent necessary to maintain the discussion within the topic area.

In the unstructured discussion condition, the instructor simply introduced the topic of drugs and then allowed the full 60 minutes for a group discussion on drugs. The instructor interrupted only when the discussion strayed from the topic of drugs.

In order to assure the subjects that their responses on the questionnaires would be confidential but still allow for the pairing of pre- and posttest results, a special procedure was employed. At the time of pretesting, each trainee was given one of the work unit leader's business cards with a number stamped on the card. The trainee was asked to use this number to identify his questionnaire and to keep the card in his wallet in the event that he was asked to complete a second questionnaire at a later time. In this way, each subject had an identification number, but there was no way to identify which individuals had which numbers. This procedure was devised following an informal discussion with a group of trainees who were not used in the data analysis. The trainees felt most confident of anonymity with this method.

RESULTS

RELIABILITY OF THE QUESTIONNAIRE

One purpose of including a control group in this study was to provide a set of data for use in estimating the test-retest reliability of the questionnaire items. Since the control group received no treatment or presentation in the interval between pretest and posttest, the relationship between their pre- and posttest responses indicated the stability or reliability of the responses over a four-day time interval. Reliability coefficients were computed for scores on each of the item clusters. The coefficients shown in Table 1 represent the test-retest correlation of the item clusters over the four-day test-retest interval used for the experimental groups.

Table 1

Test-Retest Reliability Coefficients for Item Clusters, Based on Control Group Data

Item Cluster		Reliability Coefficient (Test-Retest Correlation)
Items	Cluster Description	
1 through 14	Information scale	.84
15, 42	Confidence in volunteering for help	.68
16, 37, 38	Extent to which drug use is personal decision	.62
17, 21, 29, 32, 33	Physiological harmfulness of drugs	.75
18, 23, 30, 36	Attitudes concerning marijuana	.88
19, 24, 25, 26	Intentions for future use of drugs	.89
20, 27, 39	Usefulness of drug education	.78
22, 28, 35, 41	Reasons why people use drugs	.42
31, 34	Alternatives to drug usage	.39

The reliability coefficients indicate that seven of the item clusters had adequate reliability over the time span. Two clusters, however, were only fair (Reasons Why People Use Drugs, and Alternatives to Drug Usage).

KNOWLEDGE OF DRUG INFORMATION

The first 14 items on the questionnaire were combined for the INFORMATION scale with a possible range of scores from 0 to 14 correct. The analysis of variance of INFORMATION scores obtained from the posttest questionnaire for subjects in the experimental treatment conditions is summarized in Table 2.

Table 2

Summary of Analysis of Variance of Information Scores

(Items 1-14)

Source	df	MS	F
Between Subjects			
Group size (A)	1	10.99	3.14
Participation (B)	2	3.06	<1
Pretest level (C)[a]	2		
AB	2	.83	<1
AC	2	3.13	<1
BC	4	2.37	<1
ABC	4	6.11	1.75
Error (within cell)	198	3.50	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

No significant effects were found for group size, method of presentation, or interaction for posttest INFORMATION scores. The mean INFORMATION scores for the various experimental groups and the control group on pretest and posttest are shown in Table 3. The experimental groups and control group showed a slight increase in overall mean INFORMATION scores from pre- to posttest. However, this increase was not statistically significant.

Table 3

Mean Information Scores for Levels of Experimental and Control Groups

Subject Group	N	Pretest	Posttest
Experimental			
High	67	10.2	9.8
Medium	65	7.4	7.7
Low	84	4.8	5.9
Total		7.3	7.6
Control			
High	14	10.8	10.5
Medium	8	7.8	7.8
Low	14	5.1	5.9
Total		7.9	8.1

ATTITUDES TOWARD DRUG USE

The data for the clusters of items were analyzed using an unweighted means analysis of variance. The results of these analyses are summarized for each item cluster in Tables 4 through 11.

Table 4

Summary of Analysis of Variance of Confidence in Volunteering for Help
(Attitude Items 15, 42)

Source	df	MS	F
Between Subjects			
Group size (A)	1	.12	<1
Participation (B)	2	3.21	<1
Pretest level (C)[a]	2		
AB	2	.86	<1
AC	2	4.20	<1
BC	4	2.04	<1
ABC	4	1.92	<1
Error (within cell)	217	4.51	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

Table 5

Summary of Analysis of Variance of Extent to Which Drug Use is a Personal Decision
(Attitude Items 16, 37, 38)

Source	df	MS	F[b]
Between Subjects			
Group size (A)	1	9.58	1.39
Participation (B)	2	31.23	4.54*
Pretest level (C)[a]	2		
AB	2	9.88	1.44
AC	2	3.20	<1
BC	4	6.21	<1
ABC	4	11.00	1.60
Error (within cell)	210	6.88	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects, after the fact, on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

[b]*indicates statistical significance, $p < .05$.

Table 6

Summary of Analysis of Variance of Physiological Harmfulness of Drugs

(Attitude Items 17, 21, 29, 32, 33)

Source	*df*	MS	*F*[b]
Between Subjects			
Group size (A)	1	8.50	<1
Participation (3)	2	71.51	6.78**
Pretest level (C)[a]	2		
AB	2	7.68	<1
AC	2	8.86	<1
BC	4	6.46	<1
ABC	4	32.48	3.08*
Error (within cell)	207	10.55	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact, on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

[b]*indicates statistical significance $p<.05$; **$p<.01$.

Table 7

Summary of Analysis of Variance of Attitudes Concerning Marijuana

(Attitude Items 18, 23, 30, 36)

Source	*df*	MS	*F*
Between Subjects			
Group size (A)	1	3.26	<1
Participation (B)	2	7.25	<1
Pretest level (C)[a]	2		
AB	2	25.37	2.40
AC	2	1.63	<1
BC	4	7.25	<1
ABC	4	19.87	1.88
Error (within cell)	212	10.59	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

Table 8

Summary of Analysis of Variance of Intentions for Future Use of Drugs

(Attitude Items 19, 24, 25, 26)

Source	df	MS	F
Between Subjects			
Group size (A)	1	.23	<1
Participation (B)	2	4.39	<1
Pretest level (C)[a]	2		
AB	2	22.35	1.78
AC	2	1.56	<1
BC	4	28.01	2.24
ABC	4	11.03	<1
Error (within cell)	210	12.53	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

Table 9

Summary of Analysis of Variance of Usefulness of Drug Education

(Attitude Items 20, 27, 39)

Source	df	MS	F
Between Subjects			
Group size (A)	1	2.97	<1
Participation (B)	2	4.46	<1
Pretest level (C)[a]	2		
AB	2	9.50	2.06
AC	2	2.40	<1
BC	4	9.75	2.12
ABC	4	3.89	<1
Error (within cell)	200	4.60	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

Table 10

Summary of Analysis of Variance of Reasons Why People Use Drugs

(Attitude Items 22, 28, 35, 41)

Source	df	MS	F
Between Subjects			
Group size (A)	1	9.10	1.60
Participation (B)	2	13.14	2.31
Pretest level (C)[a]	2		
AB	2	3.09	<1
AC	2	1.96	<1
BC	4	2.05	<1
ABC	4	9.01	1.59
Error (within cell)	204	5.68	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

Table 11

Summary of Analysis of Variance of Alternatives to Drug Usage

(Attitude Items 31, 34)

Source	df	MS	F[b]
Between Subjects			
Group size (A)	1	4.47	1.03
Participation (B)	2	7.71	1.78
Pretest level (C)[a]	2		
AB	2	9.36	2.17
AC	2	12.42	2.88
BC	4	11.77	2.72*
ABC	4	6.66	1.54
Error (within cell)	208	4.32	

[a]MS and *F* for Factor C are not shown, as this factor is based on distinguishing between subjects after the fact on the dependent variable and would, therefore, be an artifact as a main effect. It has been introduced in the analysis to allow test of its interactions.

[b]*indicates statistical significance, $p < .05$.

The different levels of presentation method—lecture, structured discussion, and unstructured discussion—yielded significant posttest differences in two of the item clusters (Extent to Which Drug Use is a Personal Decision, and Physiological Harmfulness of Drugs). These analyses are summarized in Tables 5 and 6 respectively. The mean pre- and posttest scores for each of the three methods of presentation on these two item clusters are shown in Table 12.

Table 12

Pretest and Posttest Means for Item Clusters Showing Significant Differences, by Presentation Methods

Item Cluster	Method of Presentation (Participation)					
	Lecture		Structured Discussion		Unstructured Discussion	
	Pre	Post	Pre	Post	Pre	Post
Physiological harmfulness of drugs	10.6	9.7	9.5	9.5	9.7	8.6
Extent to which drug use is a personal decision	22.9	23.2	22.6	22.7	22.7	21.4

It is apparent from these means that differences in posttest scores on the item cluster dealing with Extent to Which Drug Use is a Personal Decision may be due to differences among the groups on the pretest. However, for the other item cluster (Physiological Harmfulness of Drugs) there was no noticeable difference among groups on pretest score. Therefore, differences among groups on posttest score for this item cluster appear to be a result of the presentation method. For both of these item clusters, the difference among methods of presentation does not follow the expected pattern since the lecture method produced the most desirable change while the unstructured discussion produced the least desirable change.

COMPARISON OF TREATMENT AND CONTROL GROUPS

The analyses presented earlier in this chapter (Tables 2 through 11) address the question of differences in group size and method of presentation among treatment groups. The results indicated that, for the most part, there were no differences among these groups. However, they do not address the question of whether or not the treatment groups differed from the control group, which had no drug presentation of any sort. In order to make this comparison and at the same time eliminate the confounding effects of statistical regression, treatment group means were predicted from control reliability and variance statistics. This procedure allows one to predict what the treatment group mean *would have been* if no treatment effects were operating. Since the data analyses presented earlier indicated no differences among the treatment groups, predicted means were computed for the high, medium, and low pretest groups combining the three methods of presentation and two levels of group size. These predicted scores were computed for each of the item clusters. In addition, predicted posttest means for the comparable high, medium, and low control group categories were computed for purposes of comparison. The resulting graphs are presented in Figures 1 through 9.

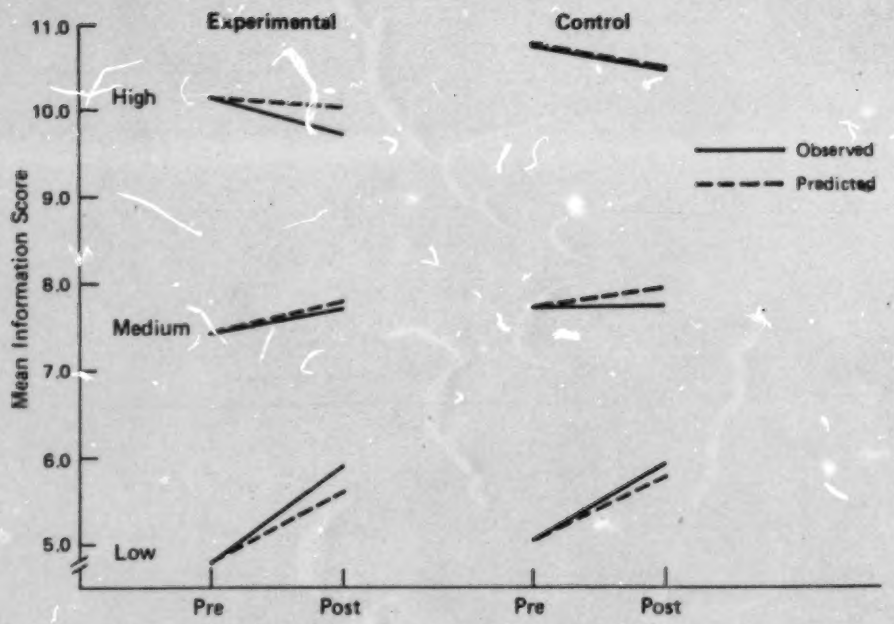

Figure 1. **Information** *(Items 1 through 14)*

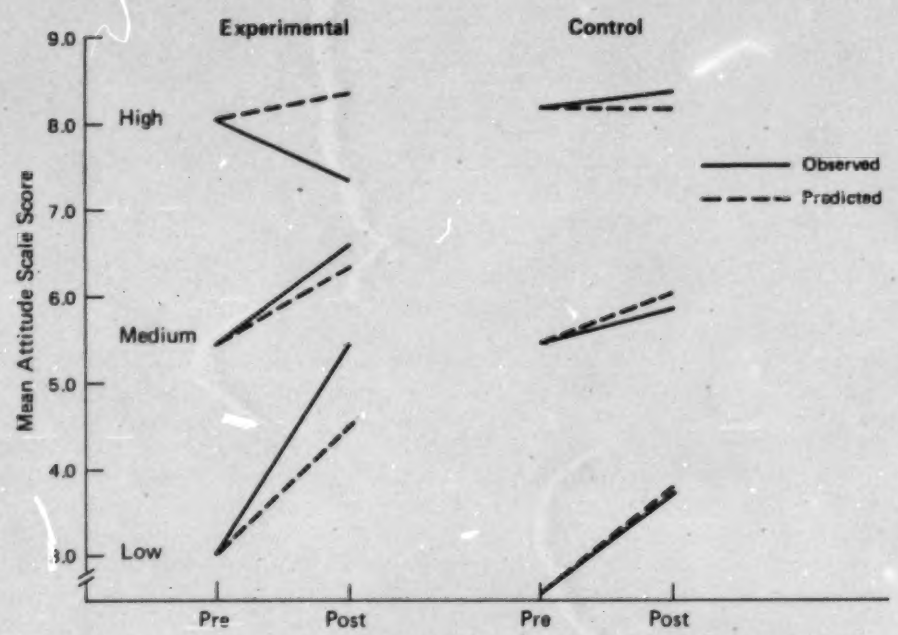

Figure 2. **Confidence in Volunteering for Help** *(Attitude Items 15, 42)*

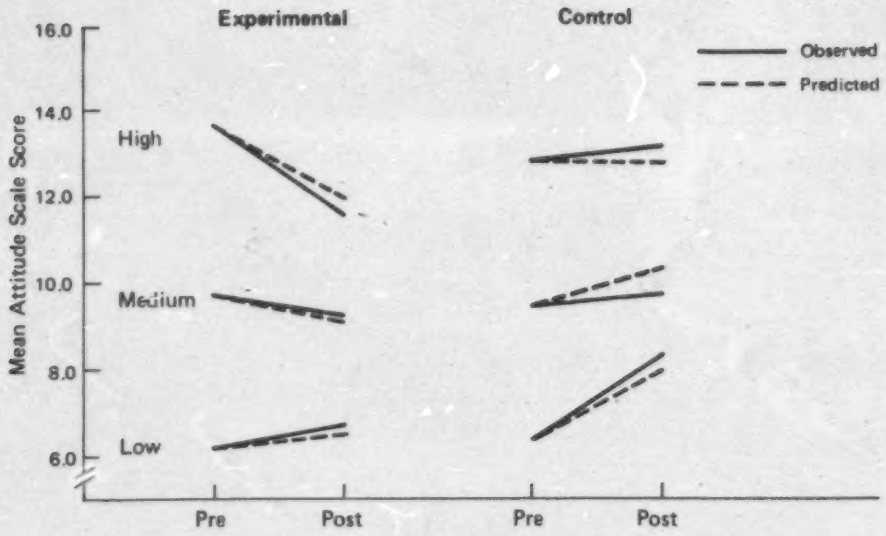

Figure 3. **Extent to Which Drug Use is Personal Decision**
(Attitude Items 16, 37,38)

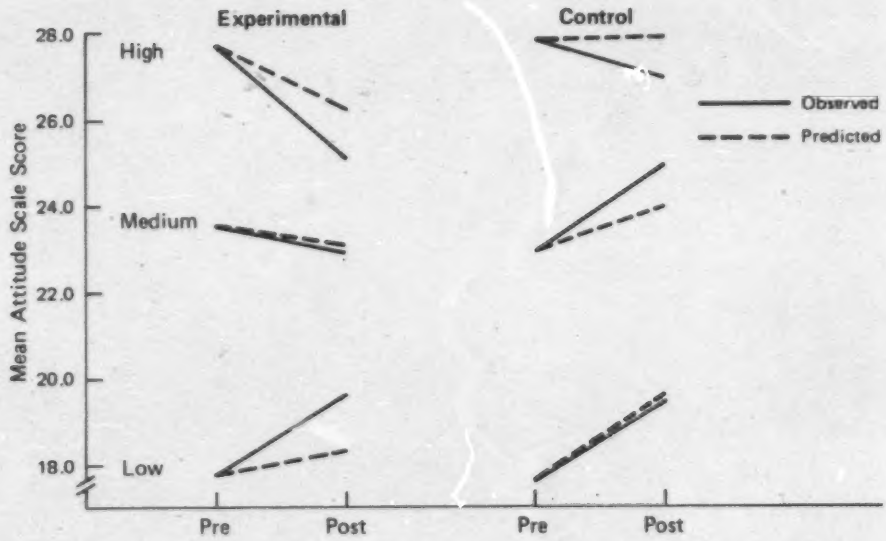

Figure 4. **Physiological Harmfulness of Drugs**
(Attitude Items 17, 21, 29, 32, 33)

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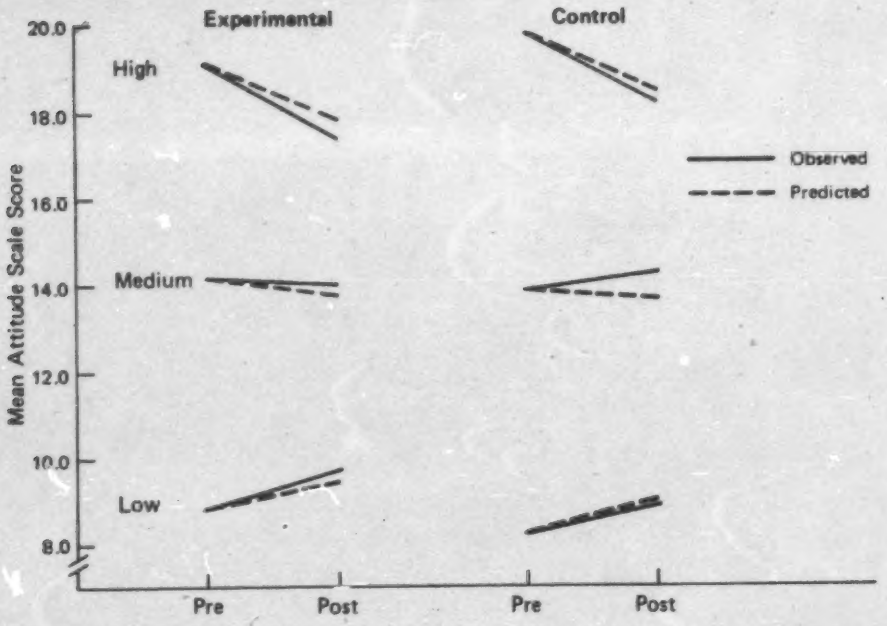

Figure 5. **Attitudes Concerning Marijuana** *(Attitude Items 18, 23, 30, 36)*

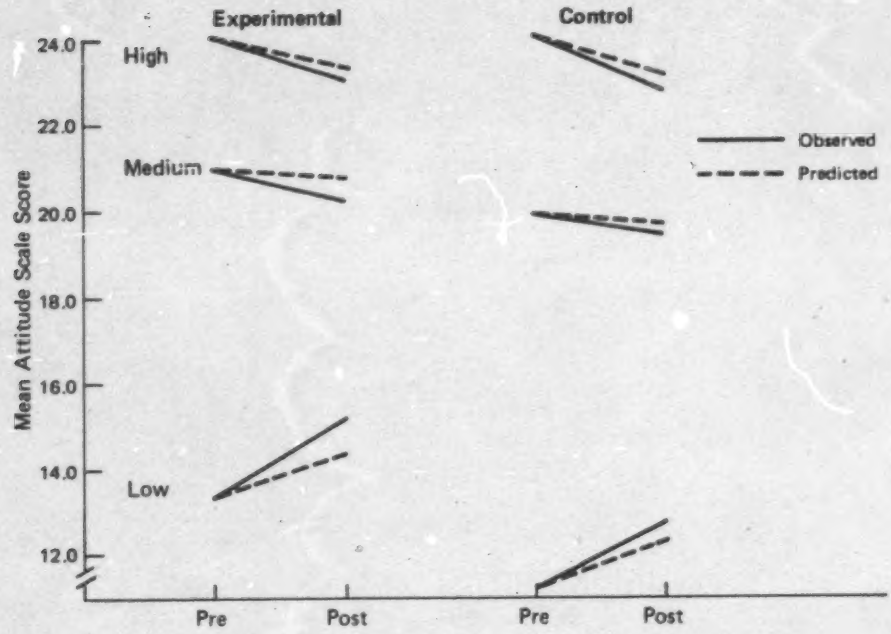

Figure 6. **Future Usage Intentions** *(Attitude Items 19, 24, 25, 26)*

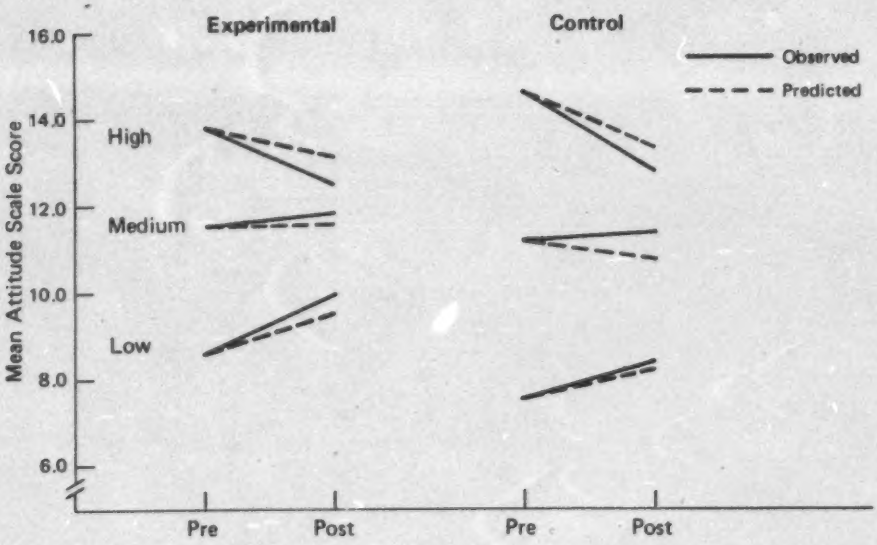

Figure 7. **Usefulness of Drug Education** *(Attitude Items 20, 27, 39)*

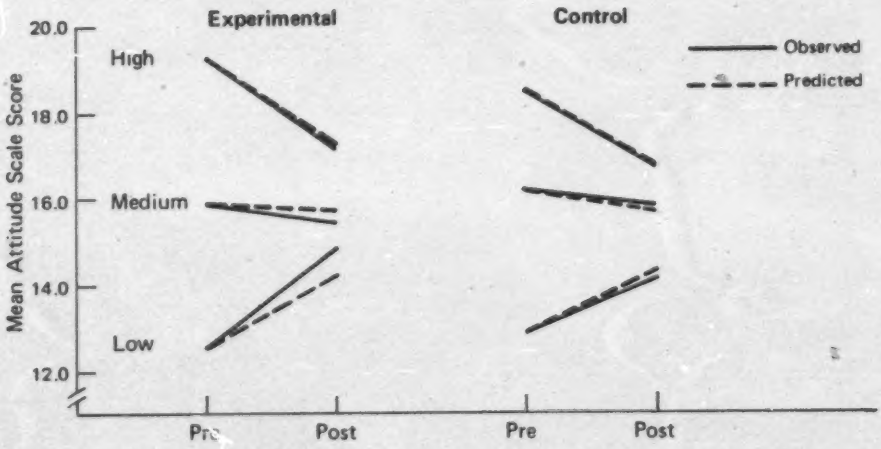

Figure 8. **Reasons Why People Use Drugs** *(Attitude Items 22, 28, 35, 41)*

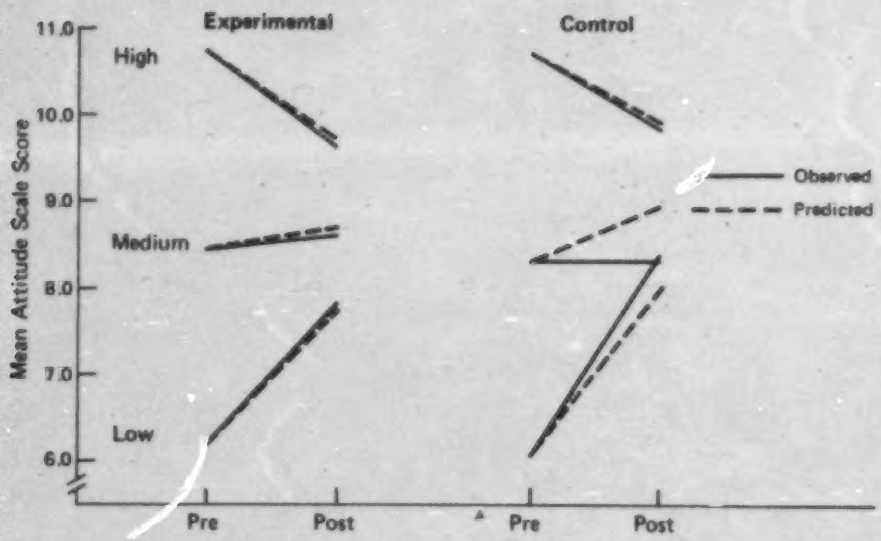

Figure 9. **Alternatives to Drug Usage** *(Attitude Items 31, 34)*

The equation used to predict these posttest scores is

$$\hat{X}_y = r_{tt}\left(\frac{s_2}{s_1}\right)\left(X_x - \bar{X}_x\right) + \bar{X}_y$$

where

$\hat{X}_y$ = predicted posttest score

r_{tt} = test-retest correlation of item cluster from control group

s_1 = standard deviation of control group pretest

s_2 = standard deviation of control group posttest

X_x = pretest score of group being predicted

$\bar{X}_x$ = mean pretest score of experimental groups on item cluster

$\bar{X}_y$ = mean posttest score of experimental groups on item cluster

As the data in Figures 1 through 9 indicate, the experimental groups observed scores were *less* extreme than their predicted scores in every item cluster. The control group scores did not show this consistent trend. In most instances, the difference between predicted and observed scores for high and low experimental groups was greater than for equivalent control groups. These differences were not tested statistically.

REGRESSION EFFECT

Regression effect is a tendency for scores to gravitate toward the mean on second or later administrations of a measuring instrument. The effect is solely a function of error in the measurement of attitudes rather than any real change in attitude. A very definite regression effect of this sort was evident in the data for all but two of the item clusters

(INFORMATION, and Extent to Which Drug Use is a Personal Decision). This effect was observed in both the experimental and the control groups.

The presence of regression effects in the experimental group data makes it difficult to assess actual treatment effects. However, if the data from the control group can be assumed to represent the attitudes of individuals in the absence of any drug presentation, then the experimental groups can be examined as they deviate from the observed attitude responses of the control group. The regression effect found in the control group data would then reflect what would happen to pretest and posttest mean scores in the absence of a treatment effect (a drug presentation). These data, in conjunction with the estimates of test-retest reliability for the control group, can then serve as the basis for constructing an equation that takes the regression effect into account. The experimental groups can then be examined as they deviate from these expected results based upon change in scores as a result of measurement error only. Any deviations from this expected outcome could then be interpreted as treatment or drug presentation effects.

DISCUSSION

GROUP SIZE AND METHOD OF PRESENTATION

In this study, group size had no effect on the outcome of a drug presentation. Large groups showed neither more nor less attitude change and knowledge gain than did small groups. In the lecture condition, the large group size consisted of 45 subjects while the small group consisted of 10 subjects. In the discussion conditions, these sizes were 15 and five respectively. One possible explanation, of course, is that the selected group sizes were not sufficiently different for any change to be detected. This explanation, however, seems more plausible for the discussion conditions, where the difference in group sizes was smallest.

An alternative explanation may be more meaningful. The advantage of small groups over large groups often lies in the small group's ability to engage in more interaction and exchange in statement of views, problem solving, and role playing activities. However, these activities often occur over a period of time longer than one hour. Since our presentations and discussions were limited to about one hour, this advantage of the small group may not have been realized. Nevertheless, the results indicated that with a one-hour drug presentation such as was used in this study, there is no noticeable advantage in dealing with small groups or groups less than the size of the large groups in this study.

In all but two item clusters there was no significant difference in effectiveness among the three methods of presentation—lecture, structured discussion, unstructured discussion. However, on the remaining two item clusters, the lecture method appeared most effective while the structured discussion appeared second most effective. In other words, the usual feeling that discussion is better than lecture was reversed for these clusters (see Table 12).

The content of the two item clusters in which methods differed was Extent to Which Drug Use is a Personal Decision, and Physiological Harmfulness of Drugs). In the first of these item clusters, the lecture group mean pretest score was definitely higher than for the two discussion conditions. This initial difference in score may well have been the reason for the lecture condition having the highest posttest mean score. Therefore, in that item cluster the significant difference found may have been an artifact of a biased sample on the pretest.

This explanation does not account for the difference found in the second of the two clusters, since the pretest means for the conditions were quite similar in this instance (see Table 12). Here, there was a clear trend in effectiveness from the unstructured discussion at the lowest point to the lecture presentation at the highest. This difference may be attributed to an actual difference in context among the three methods of presentation.

The drug presentation which was written for this study (see Appendix A) was presented verbatim only in the lecture condition. In the structured discussion condition, an outline was used to direct the discussion (Appendix B), while an absolute minimum of direction was provided in the unstructured discussion. With this procedure, there is no guarantee that all treatment groups will receive the same information and content. To the extent that the same information occurs, the methods of presentation can be directly compared. However, where there are differences in the content discussed or omissions of content in the discussion groups, the methods of presentation are not directly

comparable. Since the prepared drug presentation (Appendix A) stressed individual needs and the social interaction of an individual with others in his environment, it is very possible that such an emphasis did not develop spontaneously in the discussion groups. This possibility may have led to the observed differences in method of presentation. The same line of reasoning applies to the item cluster dealing with physiological harmfulness of drug use. Therefore it is impossible to unequivocally interpret the results concerning method of presentation in this study, since content was not held constant.

It must be emphasized that the drug presentations examined in this study are not comparable to prevention and education programs which extend over long periods of time. Many drug programs utilize a wide variety of presentation methods and interpersonal experiences. The effects of such programs cannot be compared to the outcomes of a one-hour lecture or discussion. In addition, the types of audiences included in such programs vary widely and often differ significantly from a military population of basic trainees. All of these factors act to restrict the extent to which the present study is generalizable.

OVERALL EFFECT OF DRUG EDUCATION VS NO DRUG EDUCATION

A second major question was whether the drug presentations had any effects at all. The earlier analyses were directed at differences among the various treatment groups and revealed no consistent differences. However, the experimental groups can be combined and compared to the control group which received no drug presentation. This was done by utilizing the data from the control groups to predict what would have happened in the experimental groups if no effect of a drug presentation existed (see Figures 1 through 9). These data revealed some very interesting and fairly consistent phenomena. It is apparent from both experimental and control group data that a definite regression effect occurred. This in itself is not unique. The phenomenon of statistical regression in repeated measurements using the same instrument has been discussed in many other areas.[1] In the present study where samples were separated into high, medium, and low pretest scores, this effect yields a curve such as that shown in Figure 10 when the posttest scores are also plotted.

Now, let us consider the process of attitude change in drug education efforts. There are quite obviously those whose attitudes and beliefs are definitely opposed to drugs and their abuse. Let us, for the moment, place these people "high" on the attitudes toward drugs scale (the "high" group). There are also a number of people whose attitudes are neither strongly opposed nor strongly in favor of drugs and their abuse (the "middle" group). Likewise, there are those who are very much in favor of drugs and their use (the "low" group). People's drug attitudes have a wide range, and this range of attitude can be broken into high, middle, and low just as was done with subjects in this study.

In emphasizing objective and unbiased drug education programming, the views and information which drug educators wish to advocate fall in between the extremes of attitude regarding drugs. They do not advocate an extreme anti-drug view (which would

[1] D.T. Campbell. "Reforms as Experiments," *American Psychologist*, vol. 24, 1969, pp. 409-429.

S.S. Stevens and H.B. Greenbaum. "Regression Effect in Psychophysical Judgment," *Perception and Psychophysics*, vol. 1, 1966, pp. 439-446.

D. Kahneman and A. Tversky. "On the Psychology of Prediction," *Psychological Review*, vol. 80, no. 4, 1973, pp. 237-251.

D.L. Thistlethwaite and D.T. Campbell. "Regression-Discontinuity Analysis: An Alternative to the Ex Post Facto Experiment," *Journal of Educational Psychology*, vol. 51, 1960, pp. 309-317.

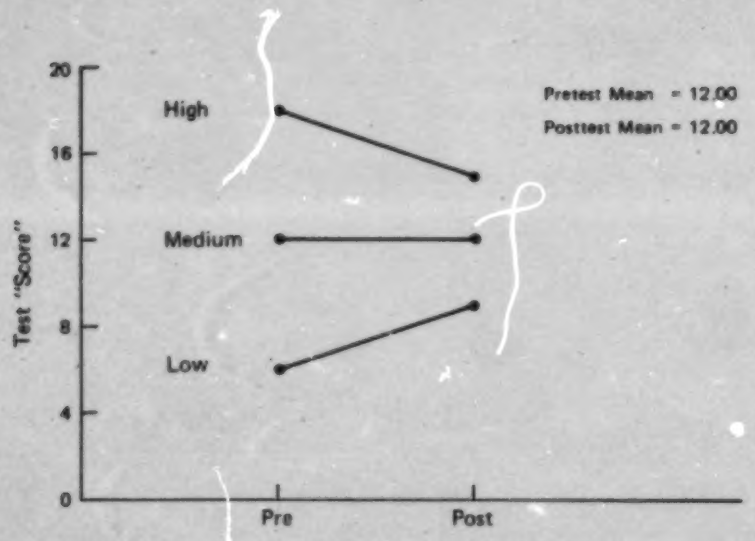

Figure 10. **An Example of Regression Effect in Repeated Measurements** *(Hypothetical Data Points)*

be based upon myth, superstition, and ignorance) or an extreme pro-drug view (which would be based upon a lack of respect for or awareness of the potential harm and danger in drug abuse). For the sake of simplicity, let us say drug educators advocate an attitude of understanding and empathy for the causes of drug use, but an awareness of the physiological harm and futility of reliance upon drugs. This advocated view falls close to a "middle" group. If we now graphically represent the results of an "ideally effective" drug education program (posttest) along with the views of the subjects prior to the program (pretest), we may see the results represented in Figure 11. The hypothetical results in Figure 11 are exactly the same as the hypothetical regression effect shown in Figure 10. If, in addition to program effects, there is also a regression effect which is additive to the program effects, this would result in an additional convergence of data points in the posttest condition.

The extent of the regression effect is determined by the reliability of the instrument being used. Where there is perfect reliability, there is no regression effect. The further the instrument is from perfect reliability, the greater will be the regression effect. Certainly in the area of attitude measurement, our measuring instruments do not have a high degree of reliability. We are, therefore, going to encounter a noticeable amount of regression effect where we attempt to assess attitudes and beliefs.

In the present study, predicted posttest mean scores were computed in order to account for the regression effect. Deviations from these predicted mean scores are conceived of as treatment effects or, in the case of the control group, additional error. If a treatment effect is present, it should be seen as a greater deviation from predicted posttest scores than in the comparable control group. This was the basis for interpreting the results in Figures 1 through 9 as indicating some possible, although not statistically significant, effect of the drug education presentation in the experimental groups. Since no statistical tests of significance were applied to these deviations from predicted scores, the conclusions are tentative and not generalizable.

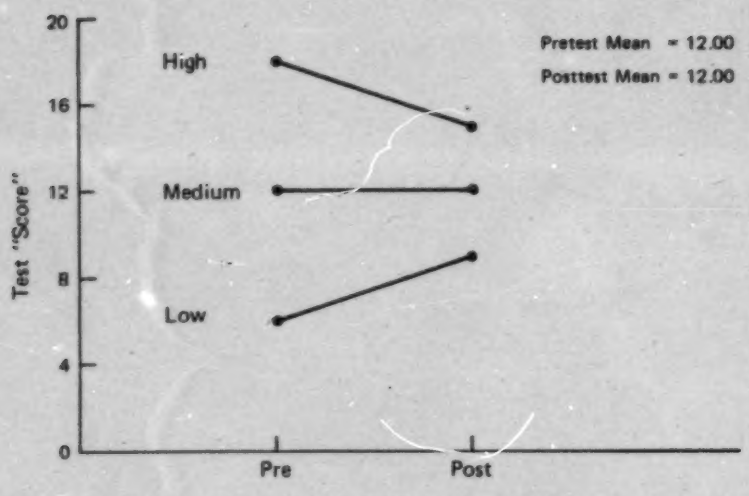

Figure 11. **Hypothetical Pretest and Posttest Means in a Drug Education Program**

SUMMATION

In this experimental study to assess the effects of group size and method of presentation on the attitude change resulting from a one-hour drug presentation, the group size variable (large vs. small) has no effect on the outcome of the attitude change measures. Large and small groups appeared to react the same to the drug presentation. On all but two of the attitude posttest measures, method of presentation had little effect on attitude change. On the two measures which did demonstrate a difference among presentation methods, the difference was the reverse of what would have been anticipated—lecture produced the greatest change while unstructured discussion produced the least. This may have been due to inequities in the treatment groups prior to presentation or differences in the content of the presentations.

The general conclusion from the analyses was that with one-hour presentations, such as those used in the study, the method of presentation and the size of the group do not make a noticeable difference in accompanying attitude change.

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AND
APPENDICES

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Appendix A

DRUG PRESENTATION LECTURE

This is not a lecture to tell you NOT to use drugs. It is simply a lecture to give you facts and information. So when the time comes to make the choice you will have accurate information on which to base *your* decision.

One can't look or listen to drug information very long without seeing that there are many sides to each issue, whether it be about the legal aspects, the medical descriptions, or even a personal account from someone who has used certain drugs. What we hear, read and even experience many times leaves us confused. Some of us also feel that information is biased and sometimes misleading. Why it is confusing is one of the reasons we are here today.

We are going to look at some differences and some similarities about individuals. No matter how different we are from one another, we also have things in common. Some of the things we share are obvious—we are wearing the same type of clothes, we're breathing,—the list can go on and on.

All of us, because of our backgrounds, even though we might have heard the same things, lived about the same number of years, still are different and particularly, we have different amounts of information and experience about many things.

As we proceed, there will be many points which could be elaborated on—you may want to take notes or jot down a question which comes to you and doesn't get discussed. Please hold these questions until the discussion period.

Let's first look at some basic needs that we have in common no matter where we come from or the experiences we have had or what kind of education we have. In order to stay alive, everyone's system needs air, food, water, a way to eliminate the waste of food and water from the body, sleep and shelter. These are common physiological needs.

Basic as these physiological needs may be, the ways in which they are met are never exactly the same for any two persons. When these physiological needs such as air, food, water, elimination are not met, there is a feeling of discomfort. We choke, gasp, get hungry, irritable, thirsty or have a general feeling of uneasiness.

We see that there is discomfort when physiological needs are not met. So it is with our *psychological* needs - love, affection, security, recognition. When you do not feel loved, or when you feel insecure, when you think you are not appreciated, or not being treated as any other human being, you obviously feel discomfort.

Whether we call it anxiety, anger, frustration, loneliness, hunger, or thirst, this physiological or psychological discomfort affects us all in different ways.

What one does about these discomforts, of course, is decided upon many times by individual circumstances—where one is, the availability of other people, laws and regulations, one's social position, the time of day, available money, season of the year, perhaps a holiday or some event we choose to celebrate. It's doubtful that there's anyone who can say everything always goes all right, that we don't at times feel angry, frustrated, hungry, or anxious. How we cope with these discomforts is also affected by our attitudes. Who or what influences us in molding these attitudes? Our family plays a key role. The way in which we were raised influences how we react to basic physiological and psychological needs. Our general food habits, meals or lack of meals were pretty much

determined by the household in which one was raised. For example, one might not eat breakfast because his family never did, or one might insist on a large breakfast because his family did not. The need for love and the need to give love have also been influenced by how one's family was able to express and/or show love.

The schools, organizations, and perhaps church or social clubs played important parts in molding attitudes. Schools give us the basic knowledge necessary to function within our particular society. Organizations limit the ways one can function. Social groups tend to reinforce the attitudes which have already developed. As each individual develops his attitudes, he finds himself more and more in contact with people who hold the same attitudes. If he does not share these, he finds himself pressured into going along, changing his attitudes to fit with those of his friends, or, he finds himself completely left out of the group.

More than likely your first cigarette, your first drink, your first drug experience was offered and supported by your friends. If not, it might have come about through personal curiosity, although group support makes it easier to obtain the goods. Another large and most impressive influencer was, and is mass media—magazines, newspapers, radio/TV, the one and two minute commercial. Have a headache? If it's from tension, there's an aspirin-like compound to eliminate it. Need to relax? Light up or have a drink. And think, how many of the ads have another person confirming, offering, or testifying to how great the product is and how well it will work to make you feel better. The whole idea of taking a remedy to escape from problems rather than face them is certainly implied. Our own social groups determine which drugs are acceptable for relief of tension and which are prohibited.

It's important to remember that most of us have had these pressures to buy, to try, to test most of our lives. Depending upon our income, the availability of the product, and whether our friends or relatives approved or disapproved, we've been talked into doing, buying or using things which may have been of little or no importance to us because it was the thing to do, to buy, to use at the time. Many things have influenced why we wanted a product that's on the market, why we might be dependent upon it to meet some of our needs. An example is the use of cigarettes. It is not just cigarettes you buy or need if you smoke. Besides the cigarettes, you need fire, matches, or a lighter, an ashtray and a trash can for the wrapper and butts. To take this example further, you need ashtrays in each room of your house, in your car, and public places. You also need the right change if you are going to buy cigarettes from vending machines. So you are not merely dependent upon tobacco alone. You are also dependent upon fire, ashtrays, and money to afford the habit. It is the same with alcohol. A huge amount of money is spent on not just the wine, the beer, the gin, but the mix—the olive, the cherry, the orange peel, the right size glass, the ice, the ice bucket, the tongs to pick the ice up with, the styrofoam cooler. . . It goes on and on. So it can be with drug use.

Notice I said drug use. We hear the terms use, abuse and later in our discussion we'll distinguish the differences. Persons may use drugs, to feel good, to get rid of tension and pressures, to experiment or to get thrills and excitement or just because their friends expect them to. Other than just feeling high, some of the problems they hope to solve might be those of anger, loneliness, frustration or general boredom. Do we need a chemical. . .tobacco. . .a drug. . .a drink. . .to be a better person, a friend, to think more clearly, to love someone, to be calm, to be creative, to get a job done, to be responsible for ourselves or others, or to get up the nerve to face reality?

Research indicated that persons at any age level virtually tune out drug information when we use scare techniques to get this information across. Even though a sensational or scare technique has been used to inform persons about drugs, one should be aware that even that which might be termed sensationalism, was perhaps based on facts.

One example is the loud voice in opposition to the indiscriminate use of LSD, (acid). It's almost unbelievable that such a minute amount (less than what one could put on the point of a common pin) is so potent. Although, there are advocates for its use there is also medical opinion that this very use is capable of causing chromosomal and/or brain damage. One pretty much has to consider believing what is reported against accepting the short and long consequences if these isolated facts hold true.

We've mentioned the fact that when our physiological needs remain unmet, we are in a general state of discomfort. We know, too, that at every level we've actually been trained or we've learned ways to lessen these anxiety states. Not only do we know how to relieve these tensions, we also know it is generally socially approved not to tolerate these periods for even a minute. If we know one way, we usually know, or will consider other ways, to provide even more total escape from these tensions and discomforts which cause us conflict. This discussion is not to imply that reducing or getting rid of tensions is not all right. It's very simple, it's convenient, perhaps expedient, when troubled with any sort of problem (hunger, loneliness, boredom, tension, anger) to take something, for immediate relief. But many times this doesn't "cure" or "solve" the real problem at all. Even though the symptom, the overall discomfort disappears, the problem remains. Perhaps, when we deny this reality and don't face the problems that we have with others or ourselves, these problems grow into worse situations to *face* later on. The fact remains that certain individuals want to escape reality whether they are under pressure or not. However, escape methods are not limited to simple aspirin. When these individuals want escape, oftentimes this escape is found through alcohol or through the use of illegal drugs.

When we try to come up with ways to provide information about drugs, the use and abuse idea, there are many things to consider. It's unlikely that, today, regardless of the age of the person, whether they were raised or lived in the East or West, North or South, city or rural area, that everyone doesn't know something about drugs.

Many persons wonder about the various conflicting laws and regulations regarding access and use of drugs, alcohol and tobacco. There won't be time to discuss each different law, state by state, or for that matter, nation by nation. One important thing we need to understand is, that not only do the laws differ from place to place *but* the interpretation of these laws, as well as the carrying out of these laws, will many times be different, too.

Why are laws interpreted differently? Why is the implementation of the law different? Well, as people gain information, there is more and more sophistication and general knowledge about why the rules exist. There is, also, because of research and education, a better understanding of what causes persons to "go around", "break", or "ignore" the laws. There are, as well, alternative approaches to what was once strictly a punishment approach to those who broke the law. Regardless of how inconsistently the laws are written or interpreted; they are changing. But the process is always slow and to date, there might not be any law or regulation which you would consider lenient.

We now have available, through local, state and/or federal agencies, programs set up specifically to help persons or families develop ways to face up to reality, through their own strengths and insights. Community, governmental organizations, industries, and educational institutions are looking at each others views as well as cooperating in comprehensive rehabilitation efforts.

A recent discussion in a pilot film on drug education, points to the simple fact that many "drug" users (especially persons in their teens) when asked to consider the bad aspects of drug use, reply, "You should talk! What about alcohol?" We're reminded, that—by some count—there are 9 million alcoholics versus several hundred thousand drug addicted persons! But one also wonders how many alcoholics there would be, today, if informational and educational programs such as the ones now being promoted for other

drugs would have been begun before this total became so large. And with tobacco, there have been many persons who faced death in the last few years, who feel that "science," "advertisers," "someone" "let them down" "sold them out" by making smoking so attractive. This is not to imply all smokers will die from diseases of the heart and lung, but it does get us back to another important aspect of drug use. We'd concluded earlier that each person's physiological needs (water, food, sleep, elimination) have to be met, that each human body differs somewhat as to how the general state or balance is maintained. That's why it is important, when considering drug dosage to realize that much depends on the chemistry of individuals, as well as, their body weight. We've an idea of the various functions of the brain, the liver, kidney and know that once they are damaged that damage is irreversible. If there is a chance to damage these particular vital organs a person may want to be aware of it before they experiment, use or become dependent to a certain drug. So, just as we've looked at some reasons why one might use drugs, alcohol, tobacco, there are some indisputable facts about certain dosages of drugs.

Let's first look at narcotic drugs like the opium derivatives: heroin, morphine, and codeine; and the synthetic opiates: methadone and demerol. Originally, these drugs were developed and distributed for medical purposes to relieve pain, reduce discomfort or induce sleep. Methadone is currently being used under medical supervision to maintain the heroin addict's physical dependence although it does not give a high. Heroin is derived by chemically altering morphine, which in turn is derived from opium. At one time, heroin was promoted as a cure to morphine addiction until it was discovered that heroin itself was the most highly addictive drug of all the opium derivatives.

The continual use of these opiates causes physical dependence, the actual number of days or doses differs for each individual.

Physical dependence or addiction means that the body requires the drug for "normal" physical functioning (we'll explain this further in a few moments).

Tolerance to a drug develops as a person becomes accustomed to the drug's physical effects and begins to require steadily larger doses to produce a constant effect. Tolerance develops rapidly—if the drug user increases his dosage for a day or so, he will become tolerant to the increased dose and must therefore maintain at least that level of habit from then on in order to avoid withdrawal symptoms. Eventually, the addict does not even obtain a "high." He is now taking heroin simply to feel "normal." An unusual development in tolerance is that even if you do not increase the dosage taken, it will take less and less time until your physical dependence will require more drugs. In other words, if one dosage usually keeps you going for two hours, slowly the time between doses will shorten so another dose is necessary to keep withdrawal from occurring.

The realization must be made that physical addiction and tolerance are not the same thing. It has been theorized that physical dependence can begin as soon as a single dose. At this stage, withdrawal would be so mild it would probably go unnoticed by the user.

Exactly what are the physical reactions to the opiate drugs and how do they affect the normal physiological balance within the body? The opiates act as a depressant: that is, they lower the action of the central nervous system, they act to suppress tension, anxiety, hunger, depression and panic. Overall, they produce a feeling of total satisfaction. The person no longer feels hunger or thirst, he probably forgets that he has not eaten for days. The need to eliminate body waste is also affected by narcotics in that it causes the gastro-intestinal tract to constrict causing constipation.

It has been argued that most of the physical and mental harm attributed to heroin is due *not to the drug* itself but to the indirect results of its use—loss of appetite, lack of cleanliness. It has been found that malnutrition, pneumonia, and TB occur more frequently in addicts than in the rest of the population.

However, the two main physical dangers of using heroin especially are overdose and infection. An overdose occurs when the amount of heroin injected into the vein exceeds

the physical tolerance of the body, and an overdose is often fatal. In all likelihood, the person who tries heroin for the first time and uses the addict's dosage would overdose. The individual's standard of living lowers, and because he becomes careless about his surroundings and himself, self administration of these drugs often leads to infections which may lead to permanent liver damage, hepatitis, and other infections which might settle in the brain, heart valves or throughout the body.

Barbiturates and tranquilizing drugs (depressants, downers) directly affect the brain and central nervous system. This can cause difficulty in concentration, slurring speech, and incoordination. Judgment, perception and memory are impaired. Emotional instability may appear increased—manifested by a quick temper and quarrelsome disposition. As you have probably noticed, these symptoms closely resemble the symptoms for the alcohol abuser. Oftentimes, the barbiturate user is mistaken for drunk.

When prescribed by a doctor and taken as directed, barbiturates and tranquilizers are quite safe and harmless. An odd fact regarding these drugs has been discovered in research. Physical dependence and tolerance to the drug do *not* show up if amount taken is below a certain amount of grams—this amount depends totally on the physiological make up of each individual. However, take only a few grams above the individual tolerance level and all the characteristics of barbiturate abuse begin to develop.

Very soon, the development of physical dependence and tolerance can be noticed. After this, if barbiturates are not taken, the person will experience withdrawal symptoms similar to narcotic drugs.

The possibility of an overdose from barbiturates is not much greater for the addict than it is for people who are taking them under medical supervision. A usual cause is when barbiturates are mixed with alcohol causing a barbiturate poisoning which can cause a coma or be fatal. The body is unable to balance the chemical effects which are imposed by the different drug effects.

Now, let us examine the amphetamines (speed, uppers) and cocaine, a natural substance which produces many of the same effects as the amphetamines. Amphetamines are synthetic drugs that are usually medically prescribed to relieve mild depression and to control the appetite. They are also prescribed for narcolepsy, the need to sleep all the time.

Amphetamines affect the central nervous system and stimulate certain portions of the brain. They may cause insomnia, restlessness, and an artificial sense of well being. In a misuse situation, the user keeps taking more drugs in order not to "come down" which causes greater fatigue and depression than the person began with. This abuse causes overstimulation - making the body or brain work at greater speed for unnatural and prolonged periods. It can cause heart failure, increased blood pressure, disorientation and hallucinations. With time, there is tolerence to the drug leading to higher and more frequent doses.

Recently, it has been realized that people often use one or more drugs simultaneously, by accident or on purpose. Alcohol and amphetamines are a prime example as well as alternate use of amphetamines and barbiturates. Unfortunately, this can often lead to an overdose.

The hallucinogens should also be mentioned. Although LSD is the best known, they also include psilocybin and mescaline. LSD was originally used by psychiatrists in their clinical work. It works on the central nervous system and causes hallucinations. Time perception becomes distorted - you might think yourself a child again; your senses tend to overflow each other so that you see sound, and/or hear color. The danger of LSD lies mainly in a "bad trip"—reoccurrences of drug effects when no drugs are taken; start of serious depression, paranoid behavior and psychotic episodes.

So far, there has been little mention of alcohol or marijuana. There is more controversy about these two drugs in our society today than any of the others we have already discussed.

Alcohol is a depressant which first affects the higher reasoning areas of the brain so that simple or abstract thinking becomes a problem. One may feel relaxed, have a sense of exhilaration, feel less inhibited, have sort of a "what does it matter" attitude. Other psychological effects of alcohol use might be time and space distortion, uncontrollable laughing or crying and loss of immediate memory. Physically, alcohol causes the blood vessels to expand causing a feeling of warmth; breathing slows down, motor skills, such as walking, and coordination are disrupted and speech is changed. The alcohol abuser may at first develop a psychological dependence but later may develop a physical dependence similar to that produced by the barbiturates. As with barbiturates, withdrawal, delirium tremens, is a possibility as is death. Often, the alcohol abuser is unaware of the decline of his normal skills in such activities as driving and working. He may not be able to perform his work as well or be continually absent or tardy. He also may very well reach a point of decreased sociability—a point of being unable to deal with social situations effectively. At this stage, he may exhibit hostility, anger, or destructiveness.

Most of the physical and psychological effects just mentioned for alcohol are the same for marijuana. It is important though, to recognize that response to marijuana varies according to the dosage or amount, how it is taken into the body (smoking or eating) and the user's expectation of its effects. Just as with alcohol, distortions of time, space, and vision and a loss of immediate recall are often noted by marijuana users. Also reported have been such effects as mental confusion, misinterpretation of sensations, euphoria, an enhanced sense of well-being, and exaggerated laughter or crying.

The most consistent physiological effects of using marijuana are: increased heart rate, the white of the eyes redden, dryness of the mouth and throat, hunger and sleepiness. The long-term physical effects of marijuana use are not yet known. However, continuous marijuana use can lead to a psychological rather than physical dependence, making it habituating rather than addicting. Habituation is the psychological desire, your emotional reasons, to repeat the use of a drug for its specific effects. Addiction is a term implying physical dependence as we discussed earlier. These psychological effects also have some social implications. With distortion of time, space, and vision, mental confusion and loss of immediate recall, and with false perceptions (like illusions of more creativity, stronger, clearer thinking, and better performance) such activities as driving and working become dangerous. Also, any tendency to become passive or euphoric might prove detrimental, not only to the individual, but to those who may be around him in an instance where immediate action or reaction is required.

We know that alcohol can be a dangerous drug physically, psychologically and socially. And to date, there is no firm evidence that marijuana would be less harmful if used consistently.

The short and long range consequences for any drug is often a question of great concern, because the answers are not always known. During the fifties, pregnant women in several countries were quite commonly written prescriptions for a drug called thalidomide. To the horror of the medical world, these women began to give birth to children who were terribly deformed, without arms, legs, or both. Legal action was taken to forbid the sale and use of this drug until more evidence could be gathered concerning its full effect. Unfortunately, thalidomide is not a single example. The list must also include DDT, phosphates in soap and cyclamates, to name but a few.

We began the hour talking about basic needs. We mentioned physiological needs: air, food, water, sleep, elimination; psychological needs: love, affection, security, and recognition; as well as social needs: to be like our friends, or to fulfill the expectations of others. If these needs are not met, one is generally anxious and uncomfortable. One then seeks to get rid of this discomfort. Based on what we have been trained to do, or learned to do and have been reinforced to do, we try to reduce this discomfort to a tolerable level. The way that we do this often depends on our attitudes toward the possible

methods available to us. When we are discussing possible methods available, it is important that we clearly define our terms of use and abuse of drugs. "Drug abuse is when one must have or feels he must have the drug in question." Drug use is when the drug is taken under medical supervision. As we know, our attitudes have been molded by many factors: our family, our friends, schools, work, and other organizations. In turn our attitudes affect the things we do and the way we act. Attitudes are one of the major reasons that some people use drugs for the same problems that others do not. There are many other reasons that people use drugs and people often use drugs for more than one reason.

When drugs are used or abused to meet needs or face problems, we can see how there are certain possible consequences. What may begin as physiological comfort may turn into dependence and addiction, and even possible withdrawal, overdose, hospitalization and death. What, at first, is psychological pleasantness may lead to habituation. Psychotic behavior may occur. When we look at the social aspects we see that what begins as use of drugs for sociability may result in antisocial behavior, ostracism and—by breaking the law—fines and imprisonment.

As we have seen, the drug laws vary from locality to locality, as well as by state and nation. They vary, not only in the way they are written, but in the way they are carried out and interpreted. They are, however, changing, whether you agree with the way they are going or not.

Any program to combat the misuses of drugs, tobacco, alcohol, marijuana has to consider the society in which the persons live and the pressures they endure. Equally importantly one must realize that the reasons persons are willing or eager to take the drug. . .use the "relaxer" "drink the drink" rather than face the problems are many.

But now there are programs available to help people become more aware of themselves and their needs. Whether a person is using drugs or is considering experimenting with them, he can, without incrimination, seek help or gain information here at Fort Knox—The Human Resources Center, The Unit Drug Education Specialist, the Chaplains, the Mental Hygiene Clinic, the Special Services and other organizational libraries, Red Cross, Army Community Service, or with the Financial Aid of CHAMPUS avail themselves to the local Comprehensive Care Centers in Radcliff, Brandenburg, Elizabethtown or Louisville. Referral to literature, teams, therapists, clinics, counselors, social workers and transcendental meditation, halfway houses, rap sessions, craft and occupational programs are all available.

This really means that people everywhere are pretty aware of the drug situation—its many implications and complexities—good and bad. Even more importantly, changes in how to approach the problem (if it is one) are underway. An example is what the Army calls the "Exemption Policy."

The Department of the Army has come to realize that drug abuse is a complex problem and not merely a breaking of laws and regulations. Their Exemption Policy is a genuine effort to help those for whom drugs are a problem. Under this program, a soldier who volunteers for treatment will not be subject to any disciplinary action under the Uniform Code of Military Justice for his past use of incidental possession of drugs. Further, if he cannot be effectively treated and rehabilitated within the service, any discharge resulting solely from his past use of incidental possession of drugs will be under honorable conditions. It should also be pointed out that those individuals identified through involuntary urinalysis, which everyone in the Army under age 29 has to take, also fall under the provisions of this Exemption Policy.

At present, there is a legal question as to whether or not the results of a urinalysis test can be presented as evidence in court proceedings. To date, urinalysis results cannot be presented since the tests are usually not voluntary. However, this could be changed.

Kentucky State Law states that drug possession, not use, is illegal. First offense usually results in sentencing to a Mental Health Rehabilitation Center. Presently, the Fort Knox Human Resources Center, the Halfway House is negotiating with Kentucky State officials to allow all military personnel apprehended in the state to be sentenced to the Halfway House on post for a rehabilitation program.

We've covered a lot of material here, perhaps it's time you had a chance to elaborate or ask questions.

We have time for 15 minutes of discussion.

Appendix B

DRUG PRESENTATION
DISCUSSION OUTLINE

I. Physiological Needs
   - A. Air, food, elimination, sleep, shelter, water
   - B. Factors influencing our meeting of these needs
     1. Family
     2. Organizations - church, school, clubs
     3. Media
     4. Workers
     5. Friends - peers - contemporaries
     6. Laws
     7. Supply and demand
     8. Means - income, social position, place

II. Psychological Needs
   - A. Love/affection, security, recognition
   - B. (Same as above I.,B.)

III. Sociological Needs
   - A. Acceptance within group peer pressures, "IN" things - use/abuse
   - B. (Same as above I.,B.)

IV. Laws
   - A. Varying interpretation
   - B. Varying implementation
   - C. Changing of laws

V. Pharmacology
   - A. Opiates - narcotics
   - B. Barbiturates
   - C. Amphetamines
   - D. Alcohol
   - E. Marijuana

VI. Services Available and Alternatives
   - A. Human Resources Center - ADIC
   - B. Special Services - libraries
   - C. Mental Hygiene Clinic
   - D. Community Services
   - E. Comprehensive Care Centers
   - F. Therapists, clinics, teams, chaplains
   - G. Craft and occupational programs
   - H. Exemption policy

Appendix C

QUESTIONNAIRE

ALL RESPONSES TO THIS QUESTIONNAIRE WILL BE TREATED AS CONFIDENTIAL AND WILL BE USED FOR RESEARCH PURPOSES ONLY.

Circle the letter next to the alternative which you feel is *most* correct.

1. An addictive drug is one which causes:

   a. Emotional and physical craving and a need to increase dosage.
   b. Emotional and physical craving, but no need to increase dosage.
   c. Emotional craving, but no physical craving or need to increase dosage.
   d. Regular use, but no craving or need to increase dosage.

2. Which one of the following is the best description of the kind of person who is likely to become a drug addict?

   a. A person who is unable to achieve a satisfactory social adjustment.
   b. A person who is unable to foresee the end results of his behavior.
   c. A person of weak character and of little self-control.
   d. No one kind of person.

3. Which is the best explanation for the close relationship between opiate use and crime?

   a. Opiates inspire criminal acts.
   b. An opiate user is not fully aware of what he is doing.
   c. An addiction to opiates is very expensive.
   d. Opiates decrease fears and inhibitions.

4. What happens when an opiate addict discontinues the use of opiates?

   a. Withdrawal causes no more physical distress than discontinuing use of tobacco.
   b. Withdrawal causes much physical distress but little danger of death.
   c. Withdrawal causes much physical distress and considerable danger of death.
   d. Withdrawal causes much emotional distress but little physical distress.

5. Which is considered America's Number 1 drug of abuse?

   a. Marijuana.
   b. Heroin.
   c. Alcohol.
   d. LSD

6. The most difficult aspect of drug dependence to overcome in treatment is the:

   a. Physiological dependence.
   b. Psychological dependence.
   c. Withdrawal syndrome.
   d. Delirium tremens ("DT's")

7. The one effect that is common with extensive use of heroin, marijuana, tobacco, barbiturate, and amphetamine is that they all will produce:

    a. Withdrawal illness.
    b. Physical dependence.
    c. Psychological dependence.
    d. Hallucinations.

8. The ability of the body to adapt to the effects of a drug is called:

    a. Addiction.
    b. Tolerance
    c. Habituation.
    d. Dependence.

9. A habit-forming drug is one which causes:

    a. Emotional and physical craving and a need to increase dosage.
    b. Emotional physical craving, but no need to increase dosage.
    c. Emotional craving, but no physical craving or need to increase dosage.
    d. Regular use, but no craving or need to increase dosage.

10. After repeated use, the marijuana smoker:

    a. Develops a marked tolerance.
    b. Develops an aversion to marijuana.
    c. Usually goes to heroin.
    d. Develops little or no tolerance.

11. Which of the following is *not* usually a morphine withdrawal symptom?

    a. Nausea, chills, prostration (exhaustion, mental depression).
    b. Cramps.
    c. Anxiety.
    d. Vomiting and weight loss.
    e. Death.

12. Death in human beings using LSD usually has been the result of suicide or accident.

    a. True.
    b. False.

13. All things can be poisonous; the variation in toxicity is in the dose and the individual's sensitivity.

    a. True.
    b. False.

14. Death from morphine overdosage is usually due to respiratory depression.

    a. True.
    b. False.

15. There is no way a soldier can safely "volunteer" for treatment of a drug problem without fear of being punished in some way.

    a. Strongly disagree.
    b. Disagree.
    c. Slightly disagree.
    d. Slightly agree.
    e. Agree.
    f. Strongly agree.

(Items 16-42) Indicate the extent to which you agree or disagree with each item by placing an "X" in the appropriate column. Please respond to each item.

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
16. The use of drugs by a person is an individual decision.						
17. The use of drugs should be avoided except when prescribed by a physician.						
18. The use of marijuana should be legalized.						
19. If the use of drugs were legalized I would try them.						
20. Most drug education efforts are ineffective.						
21. Too often drugs are used when the true consequences of their use aren't really known.						
22. People who abuse drugs are inadequate or immature.						
23. Given the opportunity, in the future, I will probably use marijuana.						
24. Given the opportunity, in the future, I will probably use amphetamines ("uppers").						
25. Given the opportunity, in the future, I will probably use barbiturates ("downers").						

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
26. Given the opportunity, in the future, I will probably use heroin or some other narcotic.						
27. My education regarding drugs is quite adequate.						
28. Many of my close friends are currently using drugs.						
29. The use of drugs can cause serious physical or psychological problems.						
30. There is no way to know in advance whether any person who uses marijuana will or will not become a habitual user of it.						
31. There are no satisfactory alternatives to drug use.						
32. Most people can use drugs without having any emotional or physical problems.						
33. The use of drugs usually does more good than harm.						
34. There are other ways to satisfy one's needs besides using drugs.						
35. One important motive for drug use is the tendency of some people with psychological problems to seek easy solutions with chemicals.						
36. The greatest danger of marijuana use is arrest for a felony.						
37. The use of drugs is a private matter.						

	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
38. Only the user is affected by drug usage.						
39. Most people can benefit from drug education programs.						
40. My feelings about drugs and drug use have not changed in the past six months.						
41. In many instances, a person's use of drugs is the result of pressure from friends and peers to use them.						
42. There aren't many places I would feel confident in going to if I had a drug problem.						

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